

SPACE EXPLORATION SYMPOSIUM (A3)  
Moon Exploration – Poster session (2D)

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## PARADIGM SHIFT: IMPLICATIONS OF XPRIZE FOUNDATION'S SUCCESS FOR BIG SPACE

**Abstract**

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Competition is a powerful motivator! Who doesn't enjoy watching the underdog overcome all odds to emerge the victor? This is especially poignant when the underdog is the entrepreneur up against big business or government. The XPRIZE Foundation (XPF) and its sponsor Google are tapping into this emotion to rekindle an interest in returning to the moon.

Today, the US Government and its prime contractors are looking to reduce program costs. Big space programs over the last 40 years have followed a prescribed set of processes, reviews, and testing aimed at eliminating risk to improve the probability of mission success. This strategy results in ever growing program sizes and complexity. As the relationship between complexity and cost for oversight is logarithmic, this strategy, when taken to a limit will spend infinite dollars to achieve zero risk. One solution is to embrace risk rather than eliminate it.

The XPRIZE model is to award substantial cash prizes for specific technical accomplishments. Furthermore, XPRIZE competitions involve a large number of entrants racing against one another for the prize. By transferring the risk to the system developer the XPRIZE model encourages and rewards lean, agile business models and efficient technical approaches.

For the Google Lunar XPRIZE the XPRIZE Foundation selected nine highly qualified industry experts to act as judges for the prize. The judges are tasked with verifying that the teams meet their technical objectives but give no advice or support to the teams.

In this paradigm, which exists at the opposite end of the spectrum from traditional government space programs, all programs do NOT have to succeed. The business case for future success in space will be one of spreading risk among a larger number of less complicated, faster paced programs each of which provides a portion of the capability or return needed—an architecture of programs.

XPF is an experiment in this new paradigm. The objective is to incentive lean solutions to achieve a lofty goal. While the architecture is emergent rather than prescribed, each participant solves the cost benefit of their attempt. If one or more teams succeed, they will be redefining the risk standard. Big Space will have to rethink the status quo and may just well adapt.